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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/315,806	05/21/1999	MARTIN M. DENEROFF	15-4-737.00	6955

7590 07/17/2006

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EXAMINER	
MYERS, PAUL R	

ART UNIT	PAPER NUMBER
2112	

DATE MAILED: 07/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/315,806	DENEROFF ET AL.	
	Examiner	Art Unit	
	Paul R. Myers	2112	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4 and 7-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,7-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-4, 7-20 have been considered but are moot in view of the new ground(s) of rejection.

In regards to applicants argument that Garnett et al does not provide any disclosure of an ability to have two processing devices briefly connected to a bus at the same time: Garnett et al teaches the devices 30-32 each being able to be independently connected to and disconnected from the bus. When they are active they are connected to the bus and when they are not active they are disconnected from the bus. (Column 4 lines 53-67). The examiner notes the difference between being connected to the bus and transmitting data on the bus. When device 30, 31 or 32 are "active" then switch 33, 34 or 35 respectively is switched on and the device is connected to the bus, after which the device can transmit and receive data. Garnett et al however teaches the grant signal that activated the FET switch 33, 34 or 35 also granting the device the right to transmit/receive data. Stiffler teaches pre-granting of the bus so as to minimize the time the processing device requires to actually transmit/receive data to/from the bus. It would have been obvious to a person of ordinary skill in the art at the time of the invention to use Stiffler's pre-grant technique in the system of Garnett et al because this would have minimized the time to device requires to actually transmit/receive data.

In regards to applicants argument that the processors of Stiffler et al are always connected to the bus. The examiner agrees. Garnett et al teaches the FET switches to connect the devices to the bus. The examiner also notes that Garnett's switches (33-35) provide the electrical isolation of which the applicants have previously argued.

In regards to the newly added claim limitation that the devices are processors: Garnett et al teaches the hot pluggable devices being I/O devices or DMA devices and that the devices issue requests. While the examiner does not know of a DMA device that issues requests that is not a processor the examiner could not swear that a processor is inherent in this type of device. Therefore PN 6,141,708 to Tavallaci et al is cited that expressly teaches a hot pluggable I/O device that includes an I/O processor. It would have been obvious to a person of ordinary skill in the art to have the I/O devices include processors because this would have freed the main processor or the job of handling I/O or DMA.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claim 1-2, 4, 7-15, and 17-19 rejected under 35 U.S.C. 103(a) as being unpatentable over Garnett et a PN 6,260,159 in view of Stiffler et al PN 4,484,273 and Tavallaci et al PN 6,141,708.

In regards to claims 1, 11 and 17: Garnett et al teaches a method of providing access to a bus, comprising: receiving a plurality of device access requests for the bus (Figure 26 item 193 and Figure 1), each of the plurality of device access requests being received from one of a plurality of devices not coupled to the bus (30-32), each of the plurality of devices having a switch associated therewith (33-35); selecting a particular one of the plurality of device access

requests according to a predetermined priority protocol (in 185 Column 17 lines 48-53); generating a control signal corresponding to the selected particular one of the plurality of device access requests (194); providing the control signal to a particular one of the plurality of devices that sent the selected particular one of the plurality of device access requests (33-35), the control signal enabling the switch associated with the particular one of the plurality of devices to couple the particular one of the plurality of devices to the bus (enabling switch 33-35 Column 4 lines 53-67); selecting a next one of the plurality of device access requests according to the predetermined priority protocol (Column 17 lines 48-53); generating a control signal corresponding to the selected next one of the plurality of device access requests (194 for next device); providing the control signal to a next one of the plurality of devices that sent the selected next one of the plurality of device access requests (33-35), the control signal enabling the switch associated with the next one of the plurality of devices to couple the next one of the plurality of devices (enabling switches 33-35 Column 4 lines 53-67). Garnett et al does not teach the control signal enabling the switch associated with the next one of the plurality of devices to couple the next one of the plurality of devices to the bus prior to an end of the particular one of the plurality of devices being coupled to the bus. Stiffler teaches a bus arbiter that generates a control signal corresponding to the a selected next one of the plurality of device access requests (pre-grant); providing the control signal to a next one of the plurality of devices that sent the selected next one of the plurality of device access requests (Column 5 lines 5-11), the control signal enabling the next one of the plurality of devices to couple to the bus prior to an end of the particular one of the plurality of devices being coupled to the bus (Column 27 lines 8-14). It would have been obvious to a person of ordinary skill in the art at the time of the invention to

"pre grant" the requests for the bus because this would have allowed for very little time to be wasted in transferring control of the bus from one device to another. While Garnett et al does expressly teach DMA devices that issue requests and even though the examiner does not know of a DMA device that issues requests that is not a processor. Garnett et al does not expressly state that the plug in devices 30-32 are processors. Tavallaci et al expressly teaches plug in I/O devices that are processors. It would have been obvious to a person of ordinary skill in the art at the time of the invention to have devices 30-32 include processors because this would have freed the main processor or the job of handling I/O or DMA.

In regards to claims 2 and 15: Garnett et al teaches the bus is a PCI bus.

In regards to claims 4, 13 and 18: Garnett et al teaches the requests coming from devices requiring use of the bus.

In regards to claims 7 and 14: Garnett et al teaches arbitrating between a plurality of requests and granting in order.

In regards to claims 8, 10 and 19: Garnett et al teaches disabling output of one device so another can access the bus.

In regards to claims 9 and 12: Garnett et al teaches a limited number of requesters.

4. Claims 3,16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garnett et al PN 6,260, 159 in view of Stiffler et al PN 4,484,273 as applied to claim 1 above, and further in view of the PCI Local Bus Specification.

In regards to claims 3,16 and 20: Garnett et al teaches the well known standard centralized PCI bus arbitration claimed above. Garnett et al however teaches the older PCI

standard of 33 Mhz and not the newer 66 or 100 Mhz PCI bus standards. The PCI Local Bus Specification teaches that the 66 Mhz PCI and 100 Mhz PCI bus standards are known. It would have been obvious to a person of ordinary skill in the art at the time of the invention to have the arbitration method described by Garnett et al in view of Stiffler et al to comply with 66 Mhz and 100 Mhz PCI buses because this would have prevented the arbitration method of Garnett et al in view of Stiffler et al from becoming out of date.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

PN 4,980,854 to Donaldson teaches a conditional grant in which a device is granted access to a resource before the resource has been released.

PN 5,265,212 to Bruce II teaches sharing bus access.

PN 5,481,680 to Larson et al teaches a grant line being asserted slightly before a done line is asserted.

PN 5,933,610 to Chambers et al teaches a predictive arbiter grants access before the return of the grant from a second arbiter.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul R. Myers whose telephone number is 571 272 3639. The examiner can normally be reached on Mon-Thur 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rehana Perveen can be reached on 571-272-3676. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Paul R. Myers

PAUL R. MYERS
PRIMARY EXAMINER

PRM
July 10, 2006